

LISTING OF CLAIMS:

The present listing of claims replaces all prior listings or versions of claims in the present application.

1. (Currently Amended) A copper-based alloy casting comprising:
69 to 88% of Cu by mass;
2 to 5% of Si by mass;
0.0005 to 0.04% of Zr by mass;
0.01 to 0.25% of P by mass; and
a remainder including Zn and inevitable impurities, and
satisfying $60 \leq \text{Cu} - 3.5 \times \text{Si} - 3 \times \text{P} \leq 71$,
wherein mean grain size after melt-solidification is 100 μm or less, and α , κ and γ -
phases occupy more than 80% of phase structure.

2. (Currently Amended) A copper-based alloy casting comprising:
69 to 88% of Cu by mass;
2 to 5% of Si by mass;
0.0005 to 0.04% of Zr by mass;
0.01 to 0.25% of P by mass;
at least one element selected from a group consisting of 0.001 to 0.2% of Mg, 0.003 to
0.1% of B, 0.0002 to 0.01% of C, 0.001 to 0.2% of Ti and 0.01 to 0.3% of rare earth element,
by mass; and
a remainder including Zn and inevitable impurities, and

satisfying $60 \leq \text{Cu} - 3.5 \times \text{Si} - 3 \times \text{P} - 0.5 \times [\text{i}] + 0.5 \times [\text{ii}] \leq 71$, [i] being a group consisting of Mg and B, and [ii] being a group consisting of C, Ti and rare earth element, wherein mean grain size after melt-solidification is 100 μm or less, and α , κ and γ -phases occupy more than 80% of phase structure.

3. (Currently Amended) A copper-based alloy casting comprising:

69 to 88% of Cu by mass;

2 to 5% of Si by mass;

0.0005 to 0.04% of Zr by mass;

0.01 to 0.25% of P by mass;

at least one element selected from a group consisting of 0.02 to 1.5% of Al, 0.2 to 4.0% of Mn and 0.01 to 0.2% of Cr, by mass; and

a remainder including Zn and inevitable impurities, and

satisfying $60 \leq \text{Cu} - 3.5 \times \text{Si} - 3 \times \text{P} - 1.8 \times \text{Al} + a \times \text{Mn} + 0.5\text{Cr} \leq 71$, wherein ~~(a = 2~~ in a case that Mn is contained more than 0.5% by mass and satisfies $0.2 \times \text{Si} \leq \text{Mn} \leq 2.0 \times \text{Si}$, and $a = 0.5$ in ~~the other cases~~),

wherein mean grain size after melt-solidification is 100 μm or less, and α , κ and γ -phases occupy more than 80% of phase structure.

4. (Currently Amended) A copper-based alloy casting comprising:

69 to 88% of Cu by mass;

2 to 5% of Si by mass;

0.0005 to 0.04% of Zr by mass;

0.01 to 0.25% of P by mass;

at least one element selected from a group consisting of 0.001 to 0.2% of Mg, 0.003 to 0.1% of B, 0.0002 to 0.01% of C, 0.001 to 0.2% of Ti and 0.01 to 0.3% of rare earth element, by mass;

at least one element selected from a group consisting of 0.02 to 1.5% of Al, 0.2 to 4.0% of Mn and 0.01 to 0.2% of Cr, by mass; and

a remainder including Zn and inevitable impurities, and

satisfying $60 \leq \text{Cu} - 3.5 \times \text{Si} - 3 \times \text{P} - 0.5 \times [\text{i}] + 0.5 \times [\text{ii}] - 1.8 \times \text{Al} + a \times \text{Mn} + 0.5\text{Cr} \leq 71$, wherein $\{a = 2 \text{ in a case that Mn is contained more than } 0.5\% \text{ by mass and satisfies } 0.2 \times \text{Si} \leq \text{Mn} \leq 2.0 \times \text{Si}, \text{ and } a = 0.5 \text{ in the other cases}\}$,

wherein mean grain size after melt-solidification is 100 μm or less, and α , κ and γ -phases occupy more than 80% of phase structure.

5. (Currently Amended) The copper-based alloy casting according to ~~any one of~~ claims 1 ~~to~~ 4, further comprising:

at least one element selected from a group consisting of 0.1 to 2.5% of Sn, 0.02 to 0.25% of Sb and 0.02 to 0.25% of As, by mass.

6. (Currently Amended) The copper-based alloy casting according to ~~any one of~~ claims 1 ~~to~~ 5, further comprising:

at least one element selected from a group consisting of 0.004 to 0.45% of Pb, 0.004 to 0.45% of Bi, 0.03 to 0.45% of Se and 0.01 to 0.45% of Te, by mass.

7. (Currently Amended) The copper-based alloy casting according to ~~any one of~~ claims 1 ~~to~~ 6, wherein P/Zr is in the range of 0.8 to 250, Si/Zr is in the range of 80 to 6000, and Si/P is in the range of 12 to 220 ~~in percent by mass~~.

8. (Currently Amended) The copper-based alloy casting according to ~~any one of~~ claims 1 ~~to~~ 7, wherein dendrites are crystallized, and the ~~dendrites~~dendrite have shapes with no arms.

9. (Currently Amended) The copper-based alloy casting according to ~~any one of~~ claims 1 ~~to~~ 7, wherein Fe, ~~and/or Ni, or Fe and Ni,~~ contained as impurities are/is contained at 0.5% or less by mass.

10. (Currently Amended) The copper-based alloy casting according to ~~any one of~~ claims 1 ~~to~~ 7, wherein Zr is in the range of 0.0010 to 0.0095% by mass.

11. (NEW) The copper-based alloy casting according to claim 2, further comprising:
at least one element selected from a group consisting of 0.1 to 2.5% of Sn, 0.02 to 0.25% of Sb and 0.02 to 0.25% of As, by mass.

12. (NEW) The copper-based alloy casting according to claim 3, further comprising:
at least one element selected from a group consisting of 0.1 to 2.5% of Sn, 0.02 to 0.25% of Sb and 0.02 to 0.25% of As, by mass.

13. (NEW) The copper-based alloy casting according to claim 4, further comprising:
at least one element selected from a group consisting of 0.1 to 2.5% of Sn, 0.02 to 0.25% of Sb and 0.02 to 0.25% of As, by mass.